WORK PLAN COMMENT / INPUT FORM - master consolidated

Trowbridge Dam TCRA

DOCUMENT NAME: DRAFT Removal Work Plan, version 04/30/2020; RTC 07/20/2020

ITEM NO.	REVIEWER	REFERENCE TO GEI SUBMITTAL (i.e., Section X.X, Page XX)	COMMENT (+ reference(s) to support)	SUGGESTION / RECOMMENDATION	GEI Response to Comments (date)
1	DC	Abbreviations and Acronyms	Add "START" to the list of acronyms	Superfund Technical Assessment and Response Team	START added to acronym list. (6/17/20)
2	PR	Table of Contents, p.3 & Section 9.18, p. 34, Section 5.1.3, p. 10,	need to sweep document for consistency on workplan nomenclature	Rename 'Dust Control and Monitoring Plan' to 'Field Monitoring Plan'	Dust Control and Monitoring Plan changed to Field Monitoring Plan throughout Removal Work Plan. (6/17/20)
3	DC	Sec 1.1, first sentence	Add statement that Work Plan is for Time-Critical Removal Action for Area 4 of OU 5	"...this Work Plan for a Time-Critical Removal Action (TCRA) for Area 4 of Operable Unit 5 (OU5)..."	First sentence of Section 1.1 was changed to incorporate suggested language. (6/17/20)
4	Mills	Section 1.2, p. 1	says this document will be revised as designs.... If we know what workplans and what schedule is being followed it would help to add some information here on when/how the workplan will be revised. Is it a living document?	If this is a living document maybe no changes need to be made here but if there is a schedule for revisions and the process is already understood it wouldn't hurt to say so here.	Comment noted. However, a set revision schedule/process has not been established for the Removal Work Plan. (6/17/20)
5	DC	Sec 1.2, 2nd sentence	Area 4 TCRA is defined in the Action Memo as a 2.4-mile stretch of the Kalamazoo River between Mile Post 47.25 and the Trowbridge Dam (Subareas C through G)	Revise sentence to reflect the TCRA boundaries	Section 1.2 changed to inidicate Area 4 TCRA is limited to Subareas C through G. (6/17/20)
6	DC	Sec 1.2, 3rd sentnece	Suggest changing the word "remedial" to "removal" to reduce confusion regarding activities in TCRA vs Area 2 and 3 remedial actions		Comment noted. However, removal does not encompass bank stabilization which is also part of the TCRA scope. (6/17/20)
7	Diana	Section 1.4	DNR is referenced in the fieure 4 flow chart and should be included in this list.	Add DNR to text.	DNR added to Section 1.4. (6/17/20)
8	DC	Sec 1.4 Project Organization	Paul - just for your consideration - do you want START shown on Org Chart as Technical support Team to EPA OSC?		No change to Figure 4. START roles and relationship to EPA are discussed in following sections of the Removal Work Plan (6//17/20).
9	Diana	2.1	References EGLE as the property owner. I believe it should be DNR.	Correct if needed	Section 2.1 changed to indicate MDNR manages Trowbridge Dam for the people of the State of Michigan. (6/17/20)
10	Mills	2.1, page 3	gifted to the State of Michigan. Owned by EGLE. This isn't correct. It was gifted to the State of Michigan and is now managed for the people of the State of Michigan by the Michigan DNR as part of the Allegan	correct to reflect ownership = State of Michigan/managed by MDNR for the people of the State	Section 2.1 changed to indicate MDNR manages Trowbridge Dam for the people of the State of Michigan. (6/17/20)
11	Mills	2.1, page 3	dam as it existed today..... when this was written it did not exist in this form	correct to say the dam today consists of a left earthen embankment, spillway, and right auxiliary spillway. Could mention that in the 80's-2019 it consisted of left embankment, spillway, and right powerhouse foundation/substructure. Some of this is addressed in later paragraph.	No changes. General dam construction/demolition timeline is provided with references to additional reports for further details. (6/17/20)
12	PR	Section 2.1, p.3 & 5, Section 4, p.8	prior to PDI results, we don't know just yet where we will be removing what from yet	at this point, include all sub-areas as potential areas for both sediment and banksoil removal	Comment noted. However, based on conversations between GEI and EPA, sediment removal will still be limited to E, F, and G, and banksoil removal to C, D, and E in accordance with Area 4 TCRA Action Memo. (6/18/20)
13	DC	Sec 2.1 Location and Current Site Description, first paragraph, last sentence	There are a limited number of stream tubes identified in Areas C and D that contain a SWAC >1 PPM. Figure 4 in Action Memo refers to sediment removal in subareas E, F, and G. Shjould the stream tubes identified in subareas C an D be included?		Comment noted. However, based on conversations between GEI and EPA, sediment removal will still be limited to E, F, and G, and banksoil removal to C, D, and E in accordance with Area 4 TCRA Action Memo. (6/18/20)
14	EGLE	2.1 Location and Current Site Description, p. 3	The Action Memorandum specifies that the scope of work is limited to sediment removal in Subareas E, F, and G and bank soil removal in Subareas C, D, and E. Page 9 of the Action Memorandum states, "The TCRA will include, but may not be limited to the following tasks: 1) Dredging and/or excavation of PCB contaminated in-stream sediments and riverbank/floodplain soils with elevated PCB concentrations (see estimated excavation area maps in Figures 3 & 4 to meet clean-up standards below." Figure 4 of the Action Memorandum states, "Riverbank bank soil removal is anticipated in Subareas C, D, and E." Figures 6 and 7 of the Removal Work Plan are labeled "Proposed Sediment Remediation" and "Proposed Bank Remediation".	In order to achieve the tasks and removal targets of the Action Memo, work may need to be performed outside of or adjacent to Subareas described in the text. This section (and all applicable sections) should be revised to acknowledge that work may be performed in other Subareas depending on the results of the PDI sampling in order to meet the Tasks and Clean-up Standards described in the Action Memo.	Comment noted. However, based on conversations between GEI and EPA, sediment removal will still be limited to E, F, and G, and banksoil removal to C, D, and E in accordance with Area 4 TCRA Action Memo. (6/18/20)
15	EGLE	2.1 Location and Current Site Description, p. 3	The text reads as follows: "The Michigan Department of Environment, Great Lakes, and Energy is the owner of the Dam and some of the surrounding property."	Revise the text to correctly state that the owner of the Dam and some of the surrounding property is the Michigan Department of Natural Resources.	Section 2.1 changed to indicate MDNR manages Trowbridge Dam for the people of the State of Michigan. (6/17/20)
16	EGLE	2.1 Location and Current Site Description, p. 4	The text reads as follows: "There are several small privately-owned parcels located within the Area 4 boundaries, however no residences are situated within its limits. "	The text should include additional discussion on this topic based on discussions in the Human Health Risk Assessment. Example discussion includes: *"Residential properties are found immediately adjacent to the exposed sediments behind the Trowbridge and Otsego Dams. In some areas, the gray paper residual waste can be observed in the backyards of residential homes along the river. Additionally, the construction of a golf course behind the Trowbridge impoundment occurred on top of and immediately adjacent to exposed sediments containing paper residual waste. In particular, residential development has occurred adjacent to exposed floodplain soil in the vicinity of the former Trowbridge, Otsego, and Plainwell dams. These areas are completely accessible to the public and, in essence, form the "backyard" for some residents."*	Added a reference to Section 2.1 to consult Amec's 2018 SRI report for further details regarding human health risks. (7/9/20)
17	DC	Sec 2.1 - 4th paragraph page 4	Schnable Brook flows into the Kalamazoo River at approximately RM 46.6, not 46.15	correct	Updated RM 46.15 to RM 46.6. (6/17/20)
18	Mills	2.1, page 4	MDNR-owned	MDNR-managed, State-owned. Important to have the distinctions correct here. The property is owned by the State, meaning the people of the State of Michigan, and managed in trust by the MDNR as part of the Allegan State Game Area. As such, the State (EGLE, MDNR, etc) represent the people of the State of Michigan	Section 2.1 changed to indicate MDNR as manager rather than owner of Area 4 recreational land. (6/17/20)
19	Mills	2.1, page 4	recreational land comment	correct in that theproperty is primarily recreational but, as with other landowners along the river, the State wishes to avoid future restrictions on landuse to provide the greatest flexibility to the owners (people of the State) in future land use decisions. Future uses will likely include developed recreation, and potentially the State may decide to divest of the property in the future for private ownership/development where possible.	Sentence added to Section 2.1 stating that alternative land uses for MDNR managed land may be evaluated following completion of the Area 4 TCRA. (6/17/20)
20	DC	Sec 2.1, last sentence - page 5	The statement "Each of these subareas will be addressed as outlined in the Area 4 Action Memorandum" should be revised to reflect that the Area 4 TCRA boundaries outlined in the Action Memo only address subareas C through G	Revise sentence to reflect the TCRA boundaries	Final sentence of Section 2.1 changed to indicate TCRA work will only be conducted in Subareas C through G. (6/17/20)
21	Mills	2.1, page 5	subarea description, no mention of needing to do work downstream of Trowbridge Dam to create a naturally stable channel and to protect the 26th Street Bridge. This languange doesn't point out that work will be necessary in that location	add a note to document the need for work to occur in that area as needed to satisfy the TCRA	Language added to Section 2.1 that post Trowbridge Dam removal conditions will be evaluated between Trowbridge Dam and the 26th Street Bridge. Additionally, restoration of this area will be incorporated into the design. (7/20/20)
22	Mills	2.2, page 5	were those samples taken from that many locations or were there x number of sediment samples from y locations (multiple samples per location).	clarify how many locations are involved if that number differs from the total samples number	Section 2.2 updated to include number of soil and sediment cores from which samples were collected for Amec SRI. (7/7/20)
23	Baker	2.2 (page 5) bottom	refers to EPA 2019 Action Memo	should state EPA 2020 Action Memo	Updated 2019 Action Memo to 2020 Action Memo. (6/17/20)
24	EGLE	3. Project Approach, p.6	The text reads as follows: "Dredging (mechanical and/or hydraulic) of PCB-contaminated in-stream sediments and excavation of riverbank/floodplain soils with PCB concentrations exceeding cleanup standards."	Given the heterogenity in PCB concentrations present throughout much of the site, please discuss if dredge prisms will be backfilled following removal, including the potential use of residual control layers. EGLE has concerns that "unfilled" dredge prisms may allow for contaminated sediments (either generated residuals or those materials just below the cut line) to be exposed and eroded during subsequent high energy flow events.	Capping and backfilling will be considered as part of the design based on anticipated post dam removal conditions. (7/16/20)
25	Mills	3, page 6	swac of .33	the target is to be .33 or below, correct? This should say that. We are not trying to land exactly on .33 but to be less than or equal to .33	Section 3 updated to clarify SWAC goal is less than or equal to 0.33 mg/kg total PCBs. (6/17/20)
26	Mills	3, page 6	1ppm, 5ppm, is called out but it's unclear where 1ppm will be applied and where 5ppm will be applied	Discussions on this should happen sooner or later. The State has concerns about where these numbers are applied based on floodplain access for the river. MDNR should have a stake in decisions as they affect the long term	Applicability of the cleanup standards provided in the TCRA Action Memo will be determined in coordination with EPA based on anticipated post dam removal conditions. (7/16/20)
27	Mills	3, page 7	stable river channel	We have been using, inconjunction with GLNPO, AOC program, State, this verbiage ensure the restoration of high-gradient river channel habitat with natural design features and floodplain access. We have seen projects in the past that have ignored this approach have had long term stability issues (they were design to be stable but were never actually stable). "Stable" is an elusive and complicated term!	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)
28	DC	Sec 3.1	The statement "Therefore, 5.0 mg/kg will serve as the cleanup standard for these areas" referring to sediments in Areas F and is not consistent with the Action Memo.	Issue should be further discussed to determine if approach is consistent with Section C of Action memo - Orderly Transition to Remedial Response	Applicability of the cleanup standards provided in the TCRA Action Memo will be determined in coordination with EPA based on anticipated post dam removal conditions. (7/16/20)
29	EGLE	3.1 Cleanup Standards, p. 7	Following water level lowering and dam removal, it is anticipated that portions of Subareas F and G will no longer be inundated, and former sediments will become dry bank or floodplain material under normal flow conditions. Therefore, 5.0 mg/kg will serve as the cleanup standard for these areas. Inundation during above-normal flows will need to be considered. Site standards for the inundation frequency, time, and depth were developed to determine when the aquatic pathway may be complete and the application of sediment clean-up goals may be necessary.	Discussion on the future inundation conditions and risk-based clean-up goals will be necessary for these locations as well as other locations that experience flooding during above-normal flow conditions since it is unclear if 5.0 mg/kg is a protective clean-up value for that scenario. Revise the document to state that 5.0 mg/kg is **proposed** for these areas and final clean-up values will be approved by EPA.	Applicability of the cleanup standards provided in the TCRA Action Memo will be determined in coordination with EPA based on anticipated post dam removal conditions. (7/16/20)
30	Mills	3.1, p. 7	swac of .33	see comment above	Section 3.1 updated to clarify SWAC goal is less than or equal to 0.33 mg/kg total PCBs. (6/17/20)
31	Mills	3.1, p. 7	proposed cleanup to 5ppm in areas exposed after dam removal. Also worth noting that flood events are much more common than models suggest. We have seen about 2, 2-year floods per year and the auxiliary spillway at Trowbridge, which was set above the 2 year flood, has had water flowing over it twice this year already. What are considered "normal flows". We should include a precise statement as to what is meant here. I would suggest we decide on a flood event to delineate between 1 and 5. Probably a 10 year event in my opinion.	This should be further delineated during the design. If floodplain soils are inundated long enough during the year then we should be more protective and consider them as sediment as fish and other aquatic organisms will be exposed during flooding.	Applicability of the cleanup standards provided in the TCRA Action Memo will be determined in coordination with EPA based on anticipated post dam removal conditions. (7/16/20)

	A	B	C	D	E	F	G
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4	**ITEM NO.**	**REVIEWER**	**REFERENCE TO GEI SUBMITTAL (i.e., Section X.X, Page XX)**	**COMMENT (+ reference(s) to support)**	**SUGGESTION / RECOMMENDATION**	**GEI Response to Comments (date)**	
36	32	EGLE	4. Pre-Design Investigation, p. 8	Refining the horizontal and vertical extent of bank soils and near-bank sediments in Subareas C, D, and E with PCB concentrations equal to or greater than the cleanup standard of 5.0 mg/kg. This data will be used in coordination with historical data (as applicable) to define the bank segments requiring removal to meet the post-remediation SWAC standard. 2. Refining the horizontal and vertical extent of current in-stream sediments in Subareas E, F, and G with PCB concentrations equal to or greater than the cleanup standard of 1.0 mg/kg. This data will be used in coordination with historical data (as applicable) to define the dredge prisms requiring removal to meet the post-remediation SWAC standard.	Revise the document to clarify what criteria is used to determine when "historic" data will be used, and what data is considered "historic". For soils, EGLE recommends the use of all data ("historic" [pre-SRI] and SRI) unless there is adequate evidence to remove it from consideration (i.e. an entire section of bank eroded into the river and the former soil sample location is now in the main channel). The EPA-approved Area 4 SRI used all soil data (pre-SRI and SRI) to generate remedial footprints for the floodplain. For sediments, the 2014 and 2015 SRI data likely does not represent the current condition. The high spatial heterogeneity of PCB concentrations in sediments and bank soils at the site should be considered as GEI continues to develop the excavation, dredging, and backfilling designs. For example, Section 5.4 discusses disposing of sediments and bank soils as non-TCSA or TSCA waste (i.e. <50 ppm or ≥50 ppm) dependent on pre-design investigation sampling. It is important to note that while PCB concentrations at one sampling location may be <50 ppm, it does not necessarily mean that concentrations in adjacent soil/sediments are also <50 ppm. Further, Section 5.4 discusses reusing bank soils and sediments that do not exceed restoration targets (i.e. 5 ppm and 1 ppm, respectively) on the site as backfill. Similarly, EGLE notes that while PCB concentrations at one sampling location may meet restoration targets, PCB concentrations in adjacent soil/sediments may exceed those targets. All data, collectively, should be considered when developing the PDI, including non-chemical data (e.g. bathymetry). EGLE's non-PCB and biotoxicity and sampling from 2016 and 2018 should also be included in evaluations since those investigations did include some sample locations that were of interest and they are the most recent data from the	Language added to Section 4 stating that historical data use will be evaluated based on likely representativeness of current conditions. For sediment, historical data will be used primarily for comparison purposes as it may not be representative of current conditions. (7/10/20)	
37	33	Williams	Section 4, p. 8 [also Section 5.4.3, p. 16]	"Predesign investigation (PDI) data is also needed…." This section includes objectives that will require the analysis of total PCB concentrations in soils and sediments. Inter-lab variability in results of these analyses have been noted in separate correspondence and investigations among parties.	The QAPP should address the ongoing issue of systematic bias in the inter-lab variability in determination of total PCB concentrations and how this is being addressed for the PDI data. (I haven't yet seen the QAPP, but wanted to be sure to note this issue at this time.)	Comment noted. This issue has been separately addressed in the QAPP. (7/7/20)	
38	34	DC	Sec 4 Pre-Design Investigation, bullet 1	Discussions on PDI efforts thus far have not indicated that bank soil samples will be collected in subarea E. Will additional bank soil delineation efforts occure in subarea E?		No changes to Removal Work Plan. Limited edge transect sampling will be performed in Subarea E as detailed in the FSP. (6/18/20)	
39	35	DC	Sec 4 Pre-Design Investigation, bullet 3	Verifying and delineating the exten of sediments or bank soils hot spots should apply to all subareas in the TCRA footprint (may detect sediment and/or soils >50 ppm during PDI which would require delineation)		Section 4 bullet 3 objective expanded to included all subareas within the TCRA boundary for hot spot delineation. (6/17/20)	
40	36	PR	Section 4, p.8	the cleanup standards (1.0 mg/kg for in-stream & 5.0 mg/kg for bank soils) need to be referenced consistently for all sub-areas throughout the document. With the proposed cleanup standard of 5.0 mg/kg in Subareas F & G, if the design includes feeder stream conveyance to the river, those channels should be considered for removal to the 1.0 mg/kg standard if appropriate.	add proposed cleanup standard of 5.0 mg/kg for sub-areas F & G. Consider the potential for a cleanup standard of 1.0 mg/kg if channels for feeders end up needing to be constructed to convey feeder stream flows to the main river channel	Applicability of the cleanup standards provided in the TCRA Action Memo will be determined in coordination with EPA based on anticipated post dam removal conditions. (7/16/20)	
41	37	PR	Section 4. p.8	See suggested text edits in attached .pdf mark up	throughout the document minor editing	Text edits from PDF were incorporated throughout the Removal Work Plan. (7/9/20)	
42	38	Mills	4, p. 9	SR89 is actually M-89	update nomenclature to avoid confusion.	SR89 bridge changed to M-89 bridge in Section 4. (6/17/20)	
43	39	Mills	5.1.1, p. 10	site security	maybe it is addressed later but wanted to capture that we plan to allow access to the launch as much as possible in 2020, but planning to close the launch from 2021 to 2023.	Comment noted. Greater detail regarding the Trowbridge Staging Area and launch access is provided in the Site Security Plan. (6/17/20)	
44	40	Mills	5.1.3, p. 10	clearing, bat considerations	clearing and grubbing should occur outside the bat closure	Language added to Section 5.1.3 to include 1) consultation with USFWS for clearing and grubbing activities and impacts on site endangered/threatened species and 2) consideration of clearing/grubbing timing to minimize habitat disturbance. (6/18/20)	
45	41	Williams	Section 5.1.3, p. 10	Glad to see that "Clearing of mature trees will be avoided when possible and in consultation with EPA." The definition of "mature trees" has implications for best management practices for Indiana bat (Federal ESA - Endangered) and northern long-eared bat (NLEB; Federal ESA - Threatened). For Indiana bat, potential roost trees are live trees and/or snags ≥5 inches DBH that have exfoliating bark or cracks/crevices. For NLEB, potential roost trees are live trees and/or snags ≥3 inches DBH that have exfoliating bark, cracks, crevices, and/or cavities. (FWS species-specific general project design guidelines, e.g. https://ecos.fws.gov/ipac/location/7RTQLYHPXRD43PBNPANKVZNWHU/documents/generated/5664.pdf)	EPA and GEI have already begun discussions with USFWS to ensure compliance with the Endangered Species Act and provide guidance about seasonal restrictions or other measures related to tree cutting if it is not possible to avoid clearing of trees greater than or equal to 3" DBH (e.g. see https://www.fws.gov/Midwest/endangered/section7/fhwa/pdf/BORevised02052018forIbatNLEB_FHWA_FRA_%20FTA.pdf)	Language added to Section 5.1.3 to include 1) consultation with USFWS for clearing and grubbing activities and impacts on site endangered/threatened species and 2) consideration of clearing/grubbing timing to minimize habitat disturbance. (6/18/20)	
46	42	Williams	Section 5.1.3, p. 10	Love the foresight on reuse of cleared and grubbed material! (Also the testing and potential re-use of sand from sandbags in section 5.1.6 - nice.)		Comment noted. (6/17/20)	
47	43	PR	Section 5.1.3, p.10	will need to incorporate any considerations arising from the ESA consult with USFWS	Consideration will be given to allowable time frames for tree clearing in consideration of the Indiana Bat, Northern Long-Eared bat and any other endangered or threatened species in consultation with USFWS and MDNR.	Language added to Section 5.1.3 to include 1) consultation with USFWS for clearing and grubbing activities and impacts on site endangered/threatened species and 2) consideration of clearing/grubbing timing to minimize habitat disturbance. (6/18/20)	
48	44	DC	Sec 5.1.3 - Clearing and Grubbing	Add statement regarding tree removal in compliance with Indiana bat regulations		Language added to Section 5.1.3 to include 1) consultation with USFWS for clearing and grubbing activities and impacts on site endangered/threatened species and 2) consideration of clearing/grubbing timing to minimize habitat disturbance. (6/18/20)	
49	45	PR	Section 5.1.4, p. 11	need to further discuss how access road/staging areas are going to be selected, pre-sampled, constructed, removed or left in place, cleared, surveyed in for future reference in anticipated floodplain work.	Mention here that all staging areas/access roads will have pre- and post-construction sampling. Also, mention that these areas will be surveyed in along with any wetland delineation for future use by EGLE or others who will be working in the floodplain. Finally, mention that these areas will either be removed/restored or may be left in place after consultation with EPA and DNR	Language added to Section 5.1.4 discussing documentation of access roads and staging areas including surveying, removal/restoration, and PCB sampling. (7/6/20)	
50	46	Williams	Section 5.1.4, p. 11	The footprint of the staging areas and access roads should be documented, along with the condition/habitat types prior to use. This is will help planning for restoration and seed mixes during site cleanup and demobilization (Section 5.6).		Statement added in Section 5.1.4 that existing conditions will be documented prior to access road and staging area construction to aid in site restoration. (6/17/20)	
51	47	EGLE	5.1.4 Access Road and Staging Area Construction, p. 11	The text reads as follows: "Performing the Area 4 TCRA may require construction of multiple staging areas and access roads following clearing and grubbing (Fig. 8)."	Based on previous project experiences, EGLE requests that the as-constructed locations and spatial extents of any access roads or staging areas be clearly and accurately recorded in project records.	Added statement to Section 5.1.4 that as-built extents of access roads and staging areas will be surveyed and documented. (6/17/20)	
52	48	Williams	Section 5.1.6, p. 11	Bank restoration is described as being "at a stable angle of repose". I'm concerned that this objective for bank design will not provide for geomorphically stable banks over time.	Suggest changing "banks then restored to a stable angle of respose" to "banks then restored and stablized as per the approved design plans" or similar.	Section 5.1.6 changed to suggested language to leave more flexibility in bank restoration/stabilization design. (6/18/20)	
53	49	DC	Section 5.1.6 Cofferdam Construction, last sentence	The statement regarding the "island" floodplains not being included in the TCRA footprint should be further discussed - the bank areas of the islands arguable are in the TCRA footprint	for broader discussion regarding approach to islands - possibly remove statement for now?	Comment noted. Issue to be discussed during design development process (7/16/20)	
54	50	Mills	5.1.6, p. 12	island	are going to be of extreme importance. Suggest the team discusses how this project will address the islands soon so that design criteria can be developed that includes this.	Comment noted. Issue to be discussed during design development process (7/16/20)	
55	51	EGLE	5.1.6 Cofferdam Construction, p. 12	Cofferdams will also be evaluated as possible means of temporarily isolating the "islands" in Areas E and F to prevent redistribution of impacted material within Area E sediments following dredging. The "island" floodplains are not included in the Area 4 TCRA scope of work; however, they present a design constraint that will be accounted for in the remedial design for Areas E, F, and G.	The islands may need to be addressed as they are located in an area that will likely experience frequent and sustained inundation following dam removal, have high concentrations of PCBs that pose risk to recreators, anglers and terrestrial and aquatic ecological receptors, and they are in an area where construction will be ongoing. EGLE notes that one sample collected during the 2018 bioxoticity sampling from the islands had a result of 72ppm for a sample that was a composite from 0-3.50'. EGLE collected two samples during the 2016 non-PCB sampling event on the islands and composited soils from 0-3.75' at each location and those two sample locations had total PCB results of 14.6ppm and 26.1ppm.	Comment noted. Issue to be discussed during design development process (7/16/20)	
56	52	Mills	5.1.7, p. 12	fill material	fill can be a source of invasive plant species, fill should be monitored for noxious seed, topsoil used should be processed so that seed viability is minimized.	Statement added in 5.1.7 for monitoring of fill material for invasive species and processing of topsoil prior to on-Site use (6/18/20)	
57	53	DC	Section 5.1.7 Imported Fill	Regarding the statement "It is not anticipated that backfill will be needed for instream dredged areas" - what about removal in area F and G - will those area be backfilled since they will be left as floodplain?		Capping and backfilling will be considered as part of the design based on anticipated post dam removal conditions. (7/16/20)	
58	54	Williams	Section 5.1.7, p. 12	Imported fill will be sampled and tested for priority pollutants before impacted, but fill can also bring in invasive species.	Consider adding that imported fill, especially topsoil, be as weed-free as practicable to prevent future problems with invasive species while trying to establish native species in the restored areas.	Language added to Section 5.1.7 stating that fill material will be inspected for invasive species prior to bringing on site and while stockpiled on site. If an unacceptable level of invasives is observed, an alternate fill source will be identified and/or corrective measures taken. (7/10/20)	
59	55	EGLE	5.1.7 Imported Fill, p. 12	Any imported fill material will be sampled and tested for priority pollutants before importing to the site	Although this will likely be covered in a separate deliverable, what are priority pollutants and what thresholds will be used to determine usability of material as imported fill? Also, the material should be certified weed-free, is possible, to avoid issues with invasive species.	Language added to Section 5.1.7 stating that fill material will be inspected for invasive species prior to bringing on site and while stockpiled on site. If an unacceptable level of invasives is observed, an alternate fill source will be identified and/or corrective measures taken. (7/10/20)	
60	56	EGLE	5.1.7 Imported Fill, p. 12	It is not anticipated that backfill will be needed for instream dredged areas.	Has this been evaluated from a technical perspective and, if so, why was a cap not considered? If areas are dredged how will we ensure that are not re-contaminated (e.g. sloughing of adjacent areas, deposition following remediation, etc.)? Please provide clarification.	Capping and backfilling will be considered as part of the design based on anticipated post dam removal conditions. (7/16/20)	
61	57	EGLE	5.1.8 Contact Water Management and Treatment System, p. 12	Please note the Substantive Requirements Document (SRD) issued by EGLE's Water Resources Division (WRD) may contain parameters with effluent limits in addition to PCBs (e.g., PFAS).	Please revise document to state that the effluent limits and parameters will be issued by WRD.	Section 5.1.8 updated to indicate effluent criteria will be provided in SRD issued by EGLE WRD. (6/17/20)	
62	58	PR	Section 5.1.8, p. 12	consider reuse of treated water directly on site for dust control or other use (i.e., wheel wash, equip decon, etc)		Section 5.1.8 updated to indicate WTS effluent meeting SRD criteria will be considered for on-site decontamination and dust control. (6/17/20).	
63	59	EGLE	5.1.9 Decontamination Procedures, p. 13	In addition to off-site water sources, WTS effluent, and other sources of water will be considered for washdown water if deemed appropriate by EPA. A detailed discussion on decontamination procedures is provided in the Waste Management Plan.	In general, WTS effluent re-use should be limited to on-Site activities under a testing and monitoring program that is approved by EPA and meets the Substantive Requirements set forth by the State. If alternate uses of waste water are being considered, those should be communicated to WRD as part of the Substantive Requirements process.	Language added to Sections 5.1.8, 5.1.9, and 5.2.1 to state potential reuse options for WTS effluent and impacts on SRD process. (6/18/20)	
64	60	PR	Section 5.1.9, p. 13	Please consider heavy equipment decontamination procedures to prevent off-site transport of PCB contamination. Also, there is a DNR procedure for checking boats for zebra mussels and other invasive species prior to launch in the river.	include heavy equipment decontamination procedures to prevent off-site transport of PCB contamination. Incorporate DNR procedure for checking boats for zebra mussels and other invasive species prior to launch in the river.	Languaged added to Section 5.1.9 for equipment decontamination to prevent spread of PCB impacts and invasive species. (7/10/20)	
65	61	Williams	Section 5.1.9, p. 13	Decontamination should also provide for inspection and cleaning of equipment arriving and leaving site for the presence of soil and plant debris that could spread invasive species, consistent with Michigan Policy Number QOL-2-2014 (https://www.michigan.gov/documents/deq/qol-wrd-policy-invasive-species-decontamination_476846_7.pdf)	Please include information on decontamination of trucks, heavy equipment, boats, dredges, trailers, and other equipment that could transport invasive species into or away from the site.	Languaged added to Section 5.1.9 for equipment decontamination to prevent spread of PCB impacts and invasive species. (7/10/20)	

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3	**DOCUMENT NAME: DRAFT Removal Work Plan, version 04/30/2020; RTC 07/20/2020**						
4	**ITEM NO.**	**REVIEWER**	**REFERENCE TO GEI SUBMITTAL (i.e., Section X.X, Page XX)**	**COMMENT (+ reference(s) to support)**	**SUGGESTION / RECOMMENDATION**	**GEI Response to Comments (date)**	
66	62	DC	Section 5.2.1 - Air Monitoring	Clarify that the air monitoring discussed within this section pertains to site perimeter monitoring to insure protection of public health in surrounding areas and is not worker health and safety monitoring. Also refer to Air Monitoring Plan for this task which will be developed by EPA/START.		Language added to Section 5.2.1 to clarify air monitoring refers to perimeter air monitoring and details will be provided in Air Monitoring Plan to be developed by START. (7/6/20)	
67	63	EGLE	5.2.1 Air Monitoring, p. 13-14	Section 5.2.1 states that "Access roads and work areas will be routinely sprayed with water to help mitigate dust levels during dry conditions."	Please specify the source(s) of water that will be used for dust suppression.	Clarification added to Section 5.2.1 that off-site water sources and WTS effluent (with EPA approval) will be used for dust control. (6/17/20)	
68	64	EGLE	5.2.2 Turbidity Monitoring, p. 14	The text discusses turbidity monitoring.	Revise the text to discuss vertical placement of turbidity monitors within the water column, acceptable thresholds in Nephelometric Turbidity Units, and changes to the proposed monitoring if flow reversal is encountered.	Comment noted. However, these details will be developed further along in the design process (7/9/20)	
69	65	DC	General comment for Section 5.4	It would be beneficial for the Work Plan to have some general discussion of riverbank soil and instream sediment sequencing (i.e. upstream to downstream, how river sections will be broken up into work areas, etc) realizing that many of the sequencing details may depend of data gathered during the PDI		Comment noted. However, as the comment states, these details are heavily dependent on results of the PDI and developments during the design process. At this time, specific sequencing details are limited. (7/9/20)	
70	66	Trumble	5.4 Sediment and Riverbank Soil Remediation	This section appears to indicate that channel and bank soils will be excavated or dredged to meet cleanup criteria and then backfilled.	Ensure that excavation/dredging and backfilling are in-line with section 5.4.5 Site Revegetation and Ecological Restoration, which include bioengineering and NCD principles.	Comment noted. Channel/bank restoration sequencing and procedures will be finalized during the design and will include bioengineering and natural channel design features.(7/6/20)	
71	67	EGLE	5.4 Sediment and Riverbank Soil Remediation, p. 15	In some cases, bank excavation may extend beyond what is needed to meet cleanup standards.	Revise the text to identify examples of cases where bank excavation is expected to extend beyond what is needed to meet cleanup standards.	No changes to text. Following sentence indicates bank excavation may be extended to meet river restoration targets or to install toewood. (7/7/20)	
72	68	EGLE	5.4 Sediment and Riverbank Soil Remediation, p. 15	If feasible, clean sediment (i.e., sediment with PCB concentrations ≤1.0 mg/kg) may be segregated for future reuse as restoration backfill	Sediment (or soil) proposed for re-use should be held to the same standards as clean fill that is brought on-Site. In general, care should be take to not exacerbate any on-Site contamination issues. Non-PCB sampling at the site shows that other a variety of contaminants other than PCBs are present in "residuals", soils, and sediments above various clean-up standards including: metals, VOCs and SVOCs, dioxins and furans, and PFAS. EGLE recommends "residuals" (paper waste) not be considered for re-use because it is a un-natural waste product, contains a variety of pollutants in addition to PCBs, and does not adequately support the growth of desirable native plant species. Please revise the section so it states that any material selected for reuse would need to be adequately characterized following methods acceptable to the USEPA, EGLE, and MDNR and meet applicable criteria for the proposed re-use.	Criteria for reuse material will be developed as part of the design and in consultation with the appropriate regulatory agencies. (7/16/20)	
73	69	EGLE	5.4.1 Riverbank Soil Excavation, p. 15 (also 5.4.5.1 Bank Restoration Techniques)	This could be done either to meet river restoration targets (such as bankfull width, floodplain inundation, long-term bank stability), or to install toewood.	Please add **stable channel** to the list of restoration targets. Furthermore, EGLE notes that by incorporating all applicable elements of natural channel design (including avoidance of rip-rap use), a stable channel providing additional ecological benefits and riparian areas can typically be achieved.	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
74	70	Mills	5.4.1	reuse onsite	consult with EPA and EGLE regarding appropriate reuse of onsite material	Criteria for reuse material will be developed as part of the design and in consultation with the appropriate regulatory agencies. (7/16/20)	
75	71	PR	Section 5.4.1, p. 15	Need to discuss reuse of of excavated material further. The standard for reuse in Area 3 was < 1 ppm.		Criteria for reuse material will be developed as part of the design and in consultation with the appropriate regulatory agencies. (7/16/20)	
76	72	DC	Section 5.4.1 Riverbank Soil Excavation	Need a descriopton added to discuss how GEI will insure that a 10-foot buffer zone is maintained along the restored river banks that does not contain any soil exceeding 1 mg/kg	During Area 3 TCRA, Contractor insured that any soils used for bank restoration construction did not contain PCBs >1 mg/kg for buffer zone	Language added to 5.4.1 discussing PCB criteria for backfill and restoration material used within and outside 10-foot buffer (6/18/20)	
77	73	Mills	5.4.2, p. 15	resue of sediments	there are no "clean" sediments on site. Sediments and soils should be considered to be above or below cleanup criteria for PCBs. Other contaminants, known and unknown, existthat may prevent beneficial reuse. MDNR will not permit beneficial reuse of paper waste in any form.	Criteria for reuse material will be developed as part of the design and in consultation with the appropriate regulatory agencies. (7/16/20)	
78	74	PR	Section 5.4.2, p. 16	need to sweep document for consistency on subareas/clean-up standard references	the cleanup level for areas F & G is proposed is at 5.0 mg/kg	Section 5.4.2 updated to clarify a proposed 5.0 mg/kg cleanup goal for Subareas F & G. The remainder of the document is consistent with this goal. (7/9/20)	
79	75	Williams	Section 5.4.2, p. 16	If mechanical dredging is needed, an environmental clamshell could significantly reduce re-suspension and produce cuts that are rectangular prisms rather than a scalloped scoops in areas that are amenable to this type of dredging (i.e. softer sediments without too much large debris).	Consider specifying options for mechnical dredging with priority given to a gasketed environmental clamshell where feasible.	Language added to Section 5.4.2 stating that selecting dredging methods that minimize sediment resuspension and turbidity will be prioritized. Specific means and methods will be determined later in the design process. (7/6/20)	
80	76	DC	Section 5.4.2 Dredging	What about limited stream tubes exceeding 1 ppm in subareas C and D?		Sediment removal in C and D will not be part of Area 4 TCRA SOW based on Area 4 Action Memo and recent discussions between GEI and EPA. (6/17/20)	
81	77	DC	Section 5.4.2 Dredging	The description in this section is inconsistent with language in Section 3.1 regarding cleanup standards. Is there consideration for dredging a pilot channel in subarea E priopr to dam removal? If so, add some discussion for consideration.	Consider revising language to make consistent with Section 3.1.	Language updated in Section 5.4.2 to clarify 1.0 mg/kg for Subarea E and 5.0 mg/kg for Subareas F & G. (7/7/20)	
82	78	Mills	5.4.3, p. 16	confirmation sampling	is there a plan for splits? Just wondering if that should be mentioned here?	Splits will be discussed in the Post Removal Confirmatory Sampling Plan. (7/6/20)	
83	79	Mills	5.4.4, p. 17	backfilling with <1pcb, sand	see comments above about beneficial reuse. EGLE may require more extensive testing to meet State standards for beneficial resuse as contaminants, both known and unknown, exist. Sand may not be appropriate for backfill, depending on application and area, because it doesn't resist erosive forces well. I'm guessing sand would be used primarily well below final grade?	Criteria for reuse material will be developed as part of the design and in consultation with the appropriate regulatory agencies. (7/16/20)	
84	80	Baker	5.4.4 (page 17), Backfilling	It's stated that excavated / dredged onsite material may be used for backfilling if it has less than 1 mg/kg PCBs.	Is this stringent enough to achieve the stated SWAC of 0.33 mg/kg for the area? Consider whether the limit for reuse of onsite material should be lower than 1 mg/kg, perhaps 0.33 mg/kg?	Criteria for reuse material will be developed as part of the design and in consultation with the appropriate regulatory agencies. (7/16/20)	
85	81	Williams	Section 5.4.5.1, p. 17	"Bank restoration and stabilization will emphasize the use of bioengineering techniques and natural channel design.....The actual techniques applied will be based on final bank angle and soil type, inundation frequency, and the velocities and shear stresses the bank will experience over all flow regimes." These statements, when combined with the statement in Section 5.1.6 about restoring banks at a stable angle of repose, raise concerns for me about the basis for bank slope design in the TCRA and the extent to which natural channel design is being incorporated. I realize that I have not been part of all of the discussions that led to the Action Memo and this Work Plan, so I apologize if this has been thoroughly discussed. I'm concerned that overly steep banks with little connection to the floodplain are being locked in place prior to final remediation of the former impoundment area in a way that does not provide an optimal overall cost to benefit ratio relative to removing enough material during the TCRA to slope and restore the banks much closer where they would need to be after final remediation to best balance natural channel design and full remediation that provides the river with a clean corridor through which it interacts with its banks and floodplain with long-term dynamic stability.	If possible at this point, EPA should request that bank pull-back, position, and slope design objectives include consistency with expected final remedy and natural channel floodplain connectivity wherever possible.	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
86	82	EGLE	Section 5.4.5.1 Bank Restoration Techniques, p. 17	"Bank restoration and stabilization will emphasize the use of bioengineering techniques and natural channel design.....The actual techniques applied will be based on final bank angle and soil type, inundation frequency, and the velocities and shear stresses the bank will experience over all flow regimes." These statements, when combined with the statement in Section 5.1.6 about restoring banks at a stable angle of repose, raise concerns for me about the basis for bank slope design in the TCRA and the extent to which natural channel design is being incorporated. I realize that I have not been part of all of the discussions that led to the Action Memo and this Work Plan, so I apologize if this has been thoroughly discussed. I'm concerned that overly steep banks with little connection to the floodplain are being locked in place prior to final remediation of the former impoundment area in a way that does not provide an optimal overall cost to benefit ratio relative to removing enough material during the TCRA to slope and restore the banks much closer where they would need to be after final remediation to best balance natural channel design and full remediation that provides the river with a clean corridor through which it interacts with its banks and floodplain with long-term dynamic stability.	If possible at this point, EGLE requests that bank pull-back, position, and slope design objectives include consistency with expected final remedy and natural channel floodplain connectivity wherever possible.	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
87	83	Mills	5.4.5.1, p. 17	bank restoration techniques	recognizing and appreciation the focus on bioengineering and natural channel design.	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
88	84	Mills	5.4.5.1, p. 17	the actual techniques applied..... I am concerned that this paragraph essentially reverses the previous paragraph in that it appears that an incised channel with little floodplain access is the expected outcome of the dam removal, then goes on to state that "geotechnical approaches" will be utilized as opposed to or in supplement to bioengineering and stability.	the river corridor can be developed here that provides for the appropriate cross section and bankfull width/depth as non-impacted reference sections of the River as well as appropriate floodplain access to achieve stability.	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
89	85	Mills	5.4.5.1, p. 17	toe stone, trying to understand about toe stone at the toe of the bank, then goes on to discuss stone extending up to bankfull elevation. That seems like full bank riprap as opposed to stone at the toe	provide some clarification as to the differences between toe stone and riprap as listed later on page 19.	Reference to toe stone up to bankfull elevation removed from Section 5.4.5.1. (7/16/20)	
90	86	PR	Section 5.4.5.1, p. 17	Consider development of a 'Restoration Plan' which specifies bank treatments to be used and where based on the modelling. In Area 3, there was a generic restoration plan and the specifics were outlined in individual Tech Memos.		Details of restoration will be included in the design documents. (7/10/20)	
91	87	PR	Section 5.4.5.1, p. 17	we may wish to consider an alternative design approach(es) allowing for floodplain interconnectivity and/or low flow benching to allow for energy dispersion.		Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
92	88	Williams	Section 5.4.5.1, p. 18	A completely biodegradable coir ECB (e.g. https://rolanka.com/erosion-mat-biodegradable-coconut-ocf/) is an excellent approach. The one note of caution I have at this point is to make sure this is actually what is used out in the field during the project. I've been out to inspect projects that I thought were going to use this type of material only to find a polymer-based erosion control netting with a fixed weave (welded corners in every cell of the net) that was supposed to degrade over 1-2 years when exposed to sunlight, but appeared to be likely to persist even longer as it got shaded by vegetation and flood deposits and was in the meantime strong enough to trap snakes and other wildlife.	Include inspection of ECB type as part of the M&M in Section 5.4.6 and in EPA's oversight plan/checklist.	Language added to section 5.4.6 stating that installed materials will be checked as part of M&M. Further details will be provided in the Post Removal Site Control Plan and will include the concern raised regarding ECB type. (7/7/20)	
93	89	Williams	Section 5.4.5.1, p. 18	Native seed mix - will we get an opportunity to review and comment on the seed mix or mixes? In other projects there have been 2 to 4 seed mixes depending expected inundation frequencies.		Comment noted. Potential seed mixes will be provided for review as part of the design documents. (7/6/20)	

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94	90	EGLE	5.4.5.1 Bank Restoration Techniques, p. 18	The text discusses "Live stakes and joint planting".	EGLE suggests that GEI consult with MDNR on the possibility of utilizing locally sourced live stakes, as such materials may have increased survival as compared to materials brought in from other areas.	Language added to Section 5.4.5.1 stating that MDNR will assist with identifying MDNR-managed properties for obtaining live stakes and toewood as needed. (6/18/20)	
95	91	Mills	5.4.5.1, p.18	live stakes and toe wood. DNR will assist with identifying where these resources can be obtained from DNR-managed properties		Language added to Section 5.4.5.1 stating that MDNR will assist with identifying MDNR-managed properties for obtaining live stakes and toewood as needed. (6/18/20)	
96	92	Williams	Section 5.4.5.1, p. 19	Rip-rap. The NRDA Trustees assess the long-term habitat value of rip-rap banks differently than bioengineered banks and will want to know the length of bank ultimately treated this way.		Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
97	93	Gunderman	Section 5.4.5.1	The toe stone paragraph indicates that stone will be required at the toe of stabilized banks and this stone generally will extend from the stream bed to the bankfull elevation. Toe stone should not be the default bank treatment method. Soft armoring techniques (such as toe wood and native seeding with coir erosion control blankets or soil lifts) should be used wherever possible.	The paragraph should be revised to indicate particular site conditions (e.g., high water velocities or steep banks) that would lead to the use of toe stone in conjunction with soft armoring methods such as seeding with ECBs and joint planting.	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
98	94	EGLE	5.4.5.1 Bank Restoration Techniques, p. 19	The text discusses potential uses of rip-rap.	The NRDA Trustees assess the long-term habitat value of rip-rap banks differently than bioengineered banks and will want to know the length of bank ultimately treated this way. The NRDA Trustees request that they be kept informed of this project component.	Comment noted. Natural channel design features will be incorporated into the final stable channel and restoration design as appropriate. These details will be finalized during the design process and provided in the design documents. (7/16/20)	
99	95	Mills	5.4.5.2, p. 19	invasive species control	keep on the radar that invasive species are brought in on equipment and especially in soil imported to the site. PREVENTION is the best way to reduce invasive species issues.	Languaged added to Section 5.1.9 for equipment decontamination to prevent spread of PCB impacts and invasive species. (7/10/20)	
100	96	DC	Section 5.4.6 Maintenance and Monitoring	Consider adding a timeline for routine inspections (suggest Monthly inspections or after significant flood events) during construction. Also need a statement added that discusses how routine inspections will be documented (i.e. checklist, report) and a tracking system that will insure that identified issues are addressed.		Maintenance and monitoring timelines and periods will be determined as part of the design and will be further discussed in the Post-Removal Site Control Plan. (7/16/20)	
101	97	Mills	5.4.6, p. 19	regular inspections of completed bank removal areas	what is "regular" ? Weekly? Monthly?	Maintenance and monitoring timelines and periods will be determined as part of the design and will be further discussed in the Post-Removal Site Control Plan. (7/16/20)	
102	98	EGLE	5.5 Waste Management and Disposal, p. 19-20	Imported material and site waste may be disposed as non-hazardous waste when needed; however, site-wide reuse and recycling will be implemented to minimize landfill disposal.	See earlier comment re: re-use of material (Comment #11)	Criteria for reuse material will be developed as part of the design and in consultation with the appropriate regulatory agencies. (7/16/20)	
103	99	DC	Section 5.5 Waste Management and Disposal	Paragraph discusses how TSCA waste will be segregated (direct loaded into roll-offs) for banks soils, but does not discuss how TSCA waste will be handled and segregated for dredged sediment.	Add a clarifying statement	Language added to Section 5.5 clarifying that hydraulically dredged TSCA sediment will be pumped to TSCA specific geotubes for dewatering rather than direct loading. (7/6/20)	
104	100	PR	Section 5.6, p.20	I want to incorporate any considerations that arise from the stakeholder group working on future use planning for the 26th Street staging area. If accommodations can be made as we restore to facilitate construction of their final design, especially if they involve cost savings for us, that would be appreciated.	Grading and restoration activities will be coordinated with any restoration plans developed by a local stakeholder group focused on future use of the staging area(s).	Language added to Section 5.6 stating that local stakeholder concerns will be considered for Trowbridge Dam staging area demobilization and restoration. (7/6/20)	
105	101	DC	Section 5.7 Post-Remediation Monitoirng and Maintenance	Consider adding a statement that describes how quarterly inspections will be documented (i.e. cheklist, report) and a tracking system that will insure that identified issues are addressed.		Statement added to Section 5.7 that further details regarding inspection documentation and tracking will be provided in the Post Removal Site Control Plan. (7/8/20)	
106	102	Baker	5.7 (page 20), post remediation monitoring	Since the TCRA work is anticipated to take 3 years, will post construction monitoring begin at different points in time depending on the sequencing of removal, stabilization, and revegetation work?	State whether post removal monitoring will begin once construction is complete in any given sub-area, and will continue until 1 year after completion of all TCRA actions in all areas (C,D,E,F,G).	Maintenance and monitoring timelines and periods will be determined as part of the design and will be further discussed in the Post-Removal Site Control Plan. (7/16/20)	
107	103	PR	Section 5.7, p. 20	need to discuss this time frame. I am suggesting 36 months based on the experience in Area 3 and the anticipated field presence of work crews engaged in Areas 2 and/or 3 to conduct repairs. We can punt this decision into the PRSCP if we can't work it out here.	strike the 12 month reference	Maintenance and monitoring timelines and periods will be determined as part of the design and will be further discussed in the Post-Removal Site Control Plan. (7/16/20)	
108	104	PR	Section 5.7, p. 20	Consider incorporating the Survey 123 form developed for Area 3 by Dan Capone for these inspections.		Statement added to Section 5.7 that further details regarding inspection documentation and tracking will be provided in the Post Removal Site Control Plan. (7/8/20)	
109	105	Wescott	5.7 Post Remediation Monitoring and Maintenance	Plant restoration may take more than 1 year to meet project goals, and may digress after the first year.	Increase post remediation monitoring to 3 years as one year may not be sufficent to evaluate planting success. Years 2 and 3 could be at a reduced level of effort from Year 1.	Maintenance and monitoring timelines and periods will be determined as part of the design and will be further discussed in the Post-Removal Site Control Plan. (7/16/20)	
110	106	EGLE	5.7 Post-Remediation Monitoring and Maintenance, p.20	After Area 4 TCRA activities are completed, post-remediation maintenance and monitoring will continue for a period of 12 months, as was done in Area 3 TCRA. Inspections of the site will be performed once per quarter and after a significant flood/storm event to monitor the success of the streambank stabilization and restoration	The post-remediation monitoring and maintenance period has not yet been determined and EGLE looks forward to more discussion on that topic. However, EGLE believes a one year (12 month) monitoring period may not be adequate.	Maintenance and monitoring timelines and periods will be determined as part of the design and will be further discussed in the Post-Removal Site Control Plan. (7/16/20)	
111	107	Mills	5.7, p. 20	12 months	in a dynamic system, and through the Area 3 TCRA experience, it is clear that 12 months is not sufficient for monitoring and maintenance. If flow regimes are low, winters light, etc, then failures will be delayed beyond 12 months and then who will be responsible for repairing them? This item should be discussed in depth before EPA approves a final M&M period. Area 1 TCRAs were 3 year M&M. If all goes as planned, NCR/GEI/contractors will be still operating in the area for some time following the completion of the TCRA.	Maintenance and monitoring timelines and periods will be determined as part of the design and will be further discussed in the Post-Removal Site Control Plan. (7/16/20)	
112	108	Mills	5.7, p. 20	monitoring inspections by GEI/EPA/Start. Please include State in this as the landowner/manager	include State (DNR/EGLE)	Updated Section 5.7 to include DNR and EGLE for monitoring. (6/17/20)	
113	109	Mills	5.7, p. 20	is EPA going to integrate corrective actions into the ROD for another company to execute? When is the ROD going to be complete? I'm guessing there will be a multi-year gap between M&M for the TCRA and the execution of the ROD where nobody will be responsible for M&M which is a risk for bank failure, loss of clean buffers, and so many more issues as we have seen in the Area 1 TCRA.	we should discuss this with NCR/GEI/EPA/State	Comment noted. Area 4 TCRA M&M timeframe will be established in consultation with EPA. (7/10/20)	
114	110	EGLE	5.7 Post-Remediation Monitoring and Maintenance, p.21	The text discusses physical monitoring following remediation.	The discussion in this section is limited to physical inspection. Clarify if post-remediation monitoring will include chemical analyses of newly deposited sediment or other media.	Updated language in Section 5.7 to clarify M&M refers to physical site conditions. (7/7/20)	
115	111	Williams	Section 6.1, p. 21	The water control structure design is described as being based on "normal and flood hydraulics", so I just want to remind folks of the hurricane rain band that sat over the area during the Plainwell dam removal project and nearly caused a catastrophic failure. Hydrographs from the past 100 years are less predictive of future ranges than they likely used to be!		The importance of this topic for the success of dam removal and safety during construction is understood. Statement added to Section 6.1 that the hydraulics and risks of various flood scenarios during all phases of dam removal will be evaluated as part of the design process. (7/8/20)	
116	112	PR	Section 6, p. 21	I believe a Dam Removal Plan needs to be developed per the CD	Mention that a "Dam Removal Plan' will be developed as specified in the CD which outlines the comoponents described in Section 6.	Reference to a Dam Removal Plan was not identified in the CD. Instead, dam removal activities will be detailed in the design specificiations and drawings. (7/16/20)	
117	113	Williams	Section 6.2, p. 21-22	Riffle control grade structures are sometimes designed with a low flow thalweg path and are sometimes designed with a fairly level grade across the width of the river. Following the Lyon's dam removal project on the Grand River, biologists observed sand that smothered mussel habitat across much of the river, apparently as a result of the low flow thalweg channel included in the design of that Newberry riffle.	Please discuss the design of the riffle structure with Scott Hanshue, the DNR fisheries biologist that worked on the Lyon's dam project, and the NRDA Trustees regarding the trade-offs between including a low flow channel in the riffle and instead having a relatively even grade across the width of the Kalamazoo River in this location.	Riffles will be designed in consultation with appropriate regulatory agencies to be protective of aquatic species and habitats, and to allow for recreational passage. Additionally, insights from previous and applicable projects will be incorporated into the Area 4 TCRA design. (7/16/20)	
118	114	EGLE	6.2 WCS and Dam Corridor Restoration, p. 21-22	The riffle grade control will be designed at an elevation and slope that both allows for fish passage (<3 feet per second for flows below bankfull) and holds the bed elevation at the design elevation.)	Please include discussion on whether or not the riffle design will allow recreational passage.	Riffles will be designed in consultation with appropriate regulatory agencies to be protective of aquatic species and habitats, and to allow for recreational passage. Additionally, insights from previous and applicable projects will be incorporated into the Area 4 TCRA design. (7/16/20)	
119	115	EGLE	6.2 WCS and Dam Corridor Restoration, p. 21	It is anticipated that a riffle grade control structure will be left in place at the location of the dam. The riffle grade control will likely be created by rubbleizing the dam sill in place. No exposed rebar will be left in the riffle-grade control.	It is unlikely that all of the rebar will be removed and it is unclear how (other than visual verification) operators would ensure the rebar is removed. For in-place rubbelization a "veneer" of stone should be considered to protect wildlife and recreationalist by encasing and containing the concrete that still contains some amount of rebar. Please provide clarification.	Riffles will be designed in consultation with appropriate regulatory agencies to be protective of aquatic species and habitats, and to allow for recreational passage. Additionally, insights from previous and applicable projects will be incorporated into the Area 4 TCRA design. (7/16/20)	
120	116	Mills	6.2, p. 21	riffle structure	riffle should be modelled after other naturally occurring riffle-pool configurations in the Kalamazoo River.	Riffles will be designed in consultation with appropriate regulatory agencies to be protective of aquatic species and habitats, and to allow for recreational passage. Additionally, insights from previous and applicable projects will be incorporated into the Area 4 TCRA design. (7/16/20)	
121	117	EGLE	6.3 Sediment Management, p. 22	It is likely some nonimpacted sediment will require management as the thalweg is restored and banks stabilized. The design for lowering the water at the dam and eventual removal of the dam will include specifications for the sequencing of nonimpacted sediment management and methods for controlling nonimpacted sediment.	Sediments not contaminated with PCBs may be contaminated with other constituents so the terms "nonimpacted" or "clean" are not reflective of the known sediment quality. Please use an alternate term.	Language in Section 6.3 changed to reflect contaminants specific to PCB (7/16/20)	
122	118	PR	Section 7.2, p. 24	The only ROW permit we may need is for signage on M-89 to signal a potential entrance at Double Eagle Drive. FYI I have an active MDOT Permit Gateway account and can get these permits at no cost.		Comment noted. No change to Removal Work Plan. (6/18/20)	
123	119	PR	Section 7.3, p.25	I can also facilitate this process with ACRC at no cost. Several permits will likely be necessary for the driveway permit(s) for access roads to staging areas and the 26th Street bridge, but we will consult directly w/ Craig Atwood at ACRC regarding the need/process.		Comment noted. No change to Removal Work Plan. (6/18/20)	
124	120	PR	Section 7.3, p.25	We will need to plan for in advance and monitor these load restrictions carefully so as not to interrupt work in the winter/spring.		Language added to Section 7.3 stating that seasonal load restrictions will be accounted for to prevent interruptions to work. (7/7/20)	
125	121	Williams	Section 7.5, p. 26	Consider changing the title of this section to "Threatened and Endangered Species and Species of Special Concern" as the stated intention is to comply with the both federal and state ESA laws, the U.S. Fish and Wildlife Service (USFWS) only directly addresses the federal ESA law, and mussels and bald eagles that are not currently listed species under the federal ESA but do have other protections are/should be included in this section. The nearest bald eagle nest that the USFWS is aware of (through 2019) is approximately 0.8 miles from Trowbridge Dam, to the NW of the dam and in a wooded area likely outside of the area likely to cause disturbance by the planned activities. If an active bald eagle nest were to occur within or nearer the project area, coordination with the USFWS Michigan Field Office should occur to determine if any protective measures may be warranted.		Comment noted. Section 7.5 title kept the same to be consistent with naming convention for Section 7. (7/10/20)	
126	122	Williams	Section 7.5, p. 26	Table 1 needs to include the Indiana bat.		Table 1 updated to include Indiana bat. (7/7/20)	
127	123	PR	Section 7.5.1, p. 26	need to coordinate these plans w/ DNR & USFWS	These workplans will be shared with MDNR and USFWS for input prior to implementation.	Language added to Section 7.5.1 stating that plans will be coordinated with MDNR and USFWS. (7/7/20)	
128	124	PR	Section 7.6, p.26	Just a FYI that I don't believe DEQ responded to Wood's JPA in Area 3 though there was some back and forth.		Comment noted. No change to Removal Work Plan. (6/18/20)	
129	125	PR	Section 7.7, p.27	State ARARs were received from Dan Peabody on 5/5/2020.	see .odf edits	Section 7.7 updated to reference most recent ARARs received on May 5, 2020. (7/9/2020)	
130	126	PR	Section 7.8, p. 27	multiple applications and land use permits will likely be necessary	see .pdf edits	Section 7.8 updated to suggested language to indicate multiple land use permits rather than just one. (7/9/20)	
131	127	PR	Section 7.10, p. 28	START is conducting the NHPA consult	see .pdf edits	Section 7.10 updated to indicate START will be conducting NHPA consult. (7/9/20)	
132	128	Williams	Section 7.10,p. 28	For ease of access, please consider making the Discovery Plan one of the appendices to this Work Plan, and making sure that contact information in it is current, especially in light of the potential staffing changes in response to COVID-19.		Comment noted. Discovery Plan is being prepared by EPA START contractors and will be incorporated by reference. (7/16/20)	
133	129	Westcott	Section 9 Planning Documents	In Section 5.7 Air Monitoring states EPA/START will conduct area air monitoring. If this work requires a plan it should be mentioned in Section 9	Add plans to be completed by others (i.e. EPA) that support the planned remedial activity.	Section 9.18 updated to state that START's perimeter air monitoring plan will be integrated into the Field Monitoring Plan. (7/9/20)	
134	130	PR	Section 9.3, p. 30	we need to incorporate provisions for sharing data w/ START in the DMP, who will have their own DMP, which should be consistent	The DMP will also include provisions for data sharing with EPA START, whom will be generating and sharing split sample data results with GEI.	Statement added to Section 9.3 that the DMP will include procedures for data sharing with START. (7/8/20)	

	A	B	C	D	E	F	G
3	**DOCUMENT NAME: DRAFT Removal Work Plan, version 04/30/2020; RTC 07/20/2020**						
4	**ITEM NO.**	**REVIEWER**	**REFERENCE TO GEI SUBMITTAL (i.e., Section X.X, Page XX)**	**COMMENT (+ reference(s) to support)**	**SUGGESTION / RECOMMENDATION**	**GEI Response to Comments (date)**	
131	131	PR	Section 9.10, p. 32	add boats for invasives, the DNR has a zebra mussel inspection protocol	see .pdf edits	Boats added to Section 9.10 for cleaning and decontamination procedures. (7/9/20)	
132	132	PR	Section 9.14, p. 33	Consider reuse of effluent for dust control or other uses if amenable.		Reuse of WTS effluent is discussed in Sections 5.1.9 and 5.2.1. (6/17/20)	
133	133	PR	Section 9.18, p. 34	consider START's AMP in this section and work plan	add language: It will integrate EPA START's workplan for perimeter dust monitoring.	Section 9.18 updated to state that START's perimeter air monitoring plan will be integrated into the Field Monitoring Plan. (7/9/20)	
134	134	Diana	Appendix A	The approved mussel work plan included comments from DNR that there was no description of work proposed as related to the dam removal. GEI commented that this plan did not cover the removal of Trowbridge Dam, only dregding activities. However, this workplan does incorporate the dam removal and only references the approved mussel plan.	The area of direct impact and buffer below the dam should be included in the mussel survey and relocation strategy for dam removal work.	Mussel salvage efforts associated with Trowbridge Dam will be scoped once the design sequencing and timeline for the removal of Trowbridge Dam is better understood. Clarifying language was added to Section 7.5.1.	
135	135	Gunderman	Table 1	Two state endangered mussel species could potentially be found in the TCRA area: black sandshell and threehorn wartyback. There are old records of both species near the mouth of the Kalamazoo River. Shells of black sandshell were found upstream of Area 4 in the Calhoun County portion of the Kalamazoo River in 2012.	For these species, the response under "Potential occurrence in impact area" should be changed to Yes.	Table 1 updated to indicate yes for potential occurrence of black sandshell and threehorn wartyback in the TCRA area. (7/7/20)	
136	136	Trumble	General, not document specific	EGLE, Water Resources Division, encourages early coordination between appropriate EGLE staff, the design team, and other stakeholders as appropriate.	Early coordination will ensure that all parties' interests are represented and understood, hopefully making the design and review processes as efficient as possible.	Comment noted. No changes to TCRA Work Plan. (6/17/20)	
137	137	Trumble	Entire Document	Wetlands are mentioned a few times throughout the document, and explicitly mentioned in the ARARs at the end of the document, however, there did not appear to be a plan to identify/delineate existing wetlands prior to any construction activities, or incorporation into the work plan avoidance and minimization of wetland impacts.	Incorporate a wetland idendification/delineation plan into the work plan as part of the planning process. Incoporate the results of the delineation into subsequent work plans such that impacts are avoided/minimized.	Language added to Section 5.1.4 stating that wetlands will be surveyed and documented as part of existing conditions survey prior to staging area and access road construction. (7/10/20)	
138	138	Mills	general	downstream of dam removal	it is expected that some work will need to take place downstream of the dam to accomplish stability of the channel and of 26th street bridge.	Language added to Section 2.1 that post Trowbridge Dam removal conditions will be evaluated between Trowbridge Dam and the 26th Street Bridge. Additionally, restoration of this area will be incorporated into the design. (7/20/20)	
139	139	EGLE	General Comment	General Comment	EGLE notes that it has concerns regarding the accuracy/representativeness of the recent SRI total PCB concentrations. Efforts to rectify these concerns and identify appropriate total PCB quantification protocols/laboratories have been initiated. EGLE will happily engage with any stakeholders on this topic upon their request.	Comment noted, no changes to Removal Work Plan. Data quality is addressed in QAPP and FSP. (6/17/20)	